

DBMSOL AND FBMSOL POWER SPECTRAL DENSITY MASKS

ABSTRACT:

In accordance with one embodiment of the present invention, a power spectral density (PSD) mask for spectral shaping of a dual bit map (DBM) mode downstream transmission is provided. The PSD mask is represented by the equation:

$$PSD_{DBMSOL} = K_{ADSL_OL} \times \frac{C}{f_0} \times \frac{\left[\sin\left(\pi \frac{f}{f_0}\right) \right]^2}{\left(\pi \frac{f}{f_0} \right)^2} \times \frac{1}{1 + \left(\frac{f}{f_{LP3dB}} \right)^{12}} \times \frac{1}{1 + \left(\frac{f_{HP3dB}}{f} \right)^6}, \quad 0 < f < \infty$$

where PSD_{DBMSOL} represents the PSD mask, K_{ADSL_OL} represents a constant value, C represents a constant value, f represents a frequency of the downstream transmission, f_0 represents a constant value, f_{LP3dB} represents a 3 decibel (dB) low pass frequency and f_{HP3dB} represents a 3 dB high pass frequency. K_{ADSL_OL} preferably has a value between 0.0900 watts and 0.1200 watts and more preferably has a value of 0.1104 watts. The constant f_0 preferably has a value between 2.100 megahertz and 2.300 megahertz and more preferably has a value of 2.208 megahertz. The constant f_{LP3dB} has a value substantially equal to $\frac{f_0}{2}$. The constant f_{HP3dB} has preferably has a value between 100 kilohertz and 150 kilohertz and more preferably has a value of 130 kilohertz. The constant C preferably has a value between 0.1 and 10 and more preferably has a value of 2.